



**FACTSHEET**  
**(pursuant to NAC 445A.236)**

**Permittee Name:** NEVADA ENVIRONMENTAL RESPONSE TRUST  
510 SOUTH 4TH STREET  
HENDERSON, NV - 89015

**Permit Number:** NV0024228

**Location:** NEVADA ENVIRONMENTAL RESPONSE TRUST, CLARK  
800 EAST ATHENS ROAD, HENDERSON, NV - 89011  
LATITUDE: 36.08549302, LONGITUDE: -114.987543  
TOWNSHIP: T21S, RANGE: R63E, SECTION: S33

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Outfall City	Outfall State	Outfall Zip	Outfall County	Latitude	Longitude	Receiving Water
001	001 COMBINED INFLUENT SMPS & HLPS AT CWTP	Influent Structure		HENDERSON	NV	89015	CLARK	36.085671	-114.988989	LAS VEGAS WASH
002	002 BACKWASH WASTE PUMP	Internal Outfall		HENDERSON	NV	89015	CLARK	36.084971	-114.988793	LAS VEGAS WASH
003	003 TREATED EFFLUENT	External Outfall		HENDERSON	NV	89015	CLARK	36.086902	-114.986951	LAS VEGAS WASH
004	004 END OF MIXING ZONE AMBIENT WASH WATER QUALITY MONITORING POINT	Receiving Water - Ambient		HENDERSON	NV	89015	CLARK	36.089819	-114.974350	LAS VEGAS WASH

**General:**

The Permittee, Nevada Environmental Response Trust (NERT), has applied for a permit to pump & treat the influent from the dewatering activities associated with Southern Nevada Water Authority's (SNWA) construction of Sunrise Mountain Weir & Historic Lateral Weir for the removal of Perchlorate. Nevada Division of Environment Protection's Bureau of Industrial Cleanup (NDEP-BISC) identified a need to mitigate the anticipated accelerated discharge of perchlorate to the Las Vegas Wash (the Wash) from the existing perchlorate plume under and by the Wash from dewatering activities during the above cited construction of Weirs. Further, the current treatment plan in the application for permit by NERT is the Permittee's response to the requirement set forth by NDEP's Finding and Order issued on April 12, 2016. This Order, in turn, was a result of an ongoing perchlorate mitigation plan for the general area and currently permitted through the permit NV0023060.

The SNWA will be pumping from several wells located and per project plan, in the vicinity of the Weir sites, and will be routed to two pump stations which in turn shall be received by NERT for treatment. Variable Frequency Drive controlled pumps (6 in total with up to 3,500 gallons per minute (GPM) capacity each) convey the water to a Strong Base Anion Exchange (SBA-IX) system at Central Water Treatment Plant (CWTP) located nearer to the Sunrise Mountain Weir via 20" diameter HDPE piping. At CWTP, suspended solids with specific gravity > 2.0 are captured by hydro cyclones, followed by multi-media filters to further remove solid particles larger than 10 microns. The SBA-IX units which are connected in the flow sequence treat and remove perchlorate from the water to below 18 micrograms/l concentration levels. The treated effluent is then co-mingled with part of the settled tail-waters from the hydro cyclones adding some of the TSS back, but only up to about a maximum TSS of 120 mg/l at the end of the pipe from the CWTP.

The treatment system, by design, has sufficient spare capacity for each of the key design elements to meet the project goal and to ensure uninterrupted operations synchronous with the Weir construction. At this time,

all the logistical and operational concerns previously raised by the NDEP have been addressed as expected through the current stage of design plans. The Permittee shall continue to work with the NDEP through the final design plan and O&M approval.

Discharge to the Las Vegas Wash from this facility shall commence only after the Permittee submits & obtains approval for 100% Design Documents as well as Operations & Maintenance (O&M) manuals for the facility.

### **Discharge Characteristics:**

Flow:  $\leq 9.94$  MGD

Per Permittee's reported Water Quality data as sampled from three monitoring wells WMW6.55S, WMW6.15, and WMW5.58SI from January 2015 & February 2016, in conjunction with the Mass-Balance Approach in translating the end of pipe concentrations, of Total Dissolved Solids (TDS), Manganese (Mn), and Boron (B) concentrations, to end of the pre-approved Ambient Water Quality Monitoring Point are as follows:

Perchlorate: Per the most recent data, as reported by the Permittee, the influent has Perchlorate in the range of 730 micrograms/liter to 1,900 micrograms/liter. The treatment process is designed to achieve Perchlorate removal to  $\leq 18$  micrograms/liter in the effluent.

TDS:  $\leq 4595$  mg/l in the treated effluent with an expectation to achieve TDS  $\leq 3000$  mg/L at the end of approved reference end of mixing zone/ambient water quality monitoring point.

Mn:  $\leq 1.08$  mg/l in the effluent &  $\leq 0.200$  mg/l at the downstream Ambient Water Quality monitoring point.

B: 2.94 mg/l in the effluent &  $\leq 0.75$  mg/l at the downstream Ambient Water Quality monitoring point.

Nitrate as N: Non Detect (ND) to 8.08 mg/l Nitrate/Nitrite as N: 0.19 J - 8.2 J

Oil & Grease: WMW sample result is 6.2 while all the other samples are ND.

TSS:  $\leq 135$  mg/l in the effluent from the treatment plant.

Total P is in the range of 0.035 J mg/l - 0.077 mg/l

Ammonia as N is Non Detect (ND)

Iron, Chromium (Total and Hexavalent), Total Kjeldahl Nitrogen (TKN), Sulfide and the rest of the toxic materials of concern as applicable for the designated waters are ND.

### **Receiving Water:**

The treated effluent is received back by the Las Vegas Wash at Telephone Line Road.

### **Summary of Changes From Previous Permit:**

This is a new permit.

### **Proposed Effluent Limitations:**

The permit limits and monitoring requirements have been established to meet the requirement to maintain higher water quality (RMHQ) standards and to prevent degradation of the receiving water.

**Discharge Limitations Table for Combined Influent Flow To Cwtp To Be Reported Monthly**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	<= 6900 Gallons per Minute (gal/min)		Intake	001	Continuous	METER
Solids, total suspended	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Biweekly	COMPOS
pH	Value		M&R Standard Units (SU)	Intake	001	Biweekly	GRAB
Solids, total dissolved	30 Day Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Biweekly	COMPOS
Perchlorate (ClO <sub>4</sub> )	Daily Maximum		M&R Micrograms per Liter (ug/L)	Intake	001	Biweekly	COMPOS
Nitrogen, total	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Monthly When Discharging	COMPOS
Ammonia nitrogen, total, (as N) 30 day	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Monthly When Discharging	COMPOS
Phosphorus, total (as P)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Intake	001	Monthly When Discharging	COMPOS

**Discharge Limitations Table for Prior To Remix With Treated Effluent (Internal Monitoring Point)  
To Be Reported Monthly**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Monthly Total	M&R Gallons per Month (gal/mo)		Internal Monitoring Point	002	Continuous	METER
Perchlorate (ClO <sub>4</sub> )	Daily Maximum		M&R Micrograms per Liter (ug/L)	Internal Monitoring Point	002	Biweekly	COMPOS
Solids, total suspended	Daily Maximum		M&R Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Biweekly	COMPOS

# **Discharge Limitations Table for Treated Effluent Discharge Pipe (External Outfall) To Be Reported Monthly**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow, total	Monthly Total	M&R Million Gallons (Mgal)		Effluent Gross	003	Continuous	METER
Solids, total suspended	Daily Maximum		<= 135 Milligrams per Liter (mg/L)	Effluent Gross	003	Weekly When Discharging	COMPOS
pH, minimum	Daily Minimum		>= 6.5 Standard Units (SU)	Effluent Gross	003	Biweekly	GRAB
pH, maximum	Daily Maximum		<= 9.0 Standard Units (SU)	Effluent Gross	003	Biweekly	GRAB
Solids, total dissolved	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Biweekly	COMPOS
Perchlorate (ClO <sub>4</sub> )	Daily Maximum		<= 18 Micrograms per Liter (ug/L)	Effluent Gross	003	Weekly When Discharging	COMPOS
Manganese, total recoverable	Daily Maximum		<= 1.72 Milligrams per Liter (mg/L)	Effluent Gross	003	Biweekly	COMPOS
Nitrogen, inorganic total	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Net	003	Biweekly	COMPOS
Ammonia nitrogen, total, (as N) 30 day	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Net	003	Biweekly	COMPOS
Phosphorus, total (as P)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Net	003	Biweekly	COMPOS
Boron, total (as B)	Daily Maximum		<= 3.71 Milligrams per Liter (mg/L)	Effluent Gross	003	Biweekly	COMPOS

**Discharge Limitations Table for End Of Mixing Zone Ambient Wash Water Quality Monitoring Point (Receiving Water - Ambient) To Be Reported Monthly**

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Nitrogen, inorganic total	Single Grab	[1]	<= 17 Milligrams per Liter (mg/L)	Downstream Monitoring	004	Monthly When Discharging	GRAB
Solids, total dissolved	Single Sample	[2]	<= 2400 Milligrams per Liter (mg/L)	Downstream Monitoring	004	Monthly When Discharging	DISCRT
Manganese, total (as Mn)	Daily Maximum	[3]	<= 200 Micrograms per Liter (ug/L)	Downstream Monitoring	004	Monthly When Discharging	DISCRT
Boron, total (as B)	Daily Maximum	[3]	<= 750 Micrograms per Liter (ug/L)	Downstream Monitoring	004	Monthly When Discharging	DISCRT

Notes (Discharge Limitations Table):

1. Total Inorganic Nitrogen : 95% of Single Value Samples should be <= 17 mg/l (NAC 445A.2158 RMHQ )
2. Total Dissolved Solids : 95% of S.V. samples <= 2400 mg/l (NAC 445A.2158 RMHQ)
3. NAC 445A.1236 Standards for toxic materials applicable to designated waters.

**Proposed Technology Based Effluent Limitations:**

Perchlorate <= 18 micrograms/liter

**Proposed Water Quality-Based Effluent Limitations:**

WQBELs are set per NAC445A.1236 & NAC445A.2156 .

pH & TSS levels at the end of the CWTP per NAC445A.1236 to be achieved at the Outfall 003.

pH,TDS, Nitrogen Inorganic Total, Nitrite Total, Nitrate Total, Mn & Bo limits (per NAC445A.2156 & NAC445A.1236) to be achieved at the approved end of the mixing zone (AWQMP-Outfall 004).

**Rationale for Permit Requirements:**

Effluent Water Quality Standards are set primarily with reference to NAC445A.1236 & NAC445A.2158 as applicable at the boundary of the approved end of mixing-zone for the discharge from the facility.

The influent is characterized as chiefly consisting of existing surface waters and a smaller portion of shallow groundwater of the Las Vegas Wash located down gradient to BMI. The estimated reach time for the shallow groundwater portion of the influent is a maximum of few days. As such TMDLs developed for Ammonia and Phosphorous for the Lake Mead do not apply for the discharges from this treatment facility.

Permittee's outfall will be within a few hundred feet of existing outfalls (American Pacific Corporation, NERT, Titanium Metals Corporation (two outfalls), and City of Henderson (CoH)) to the Wash. Further the

existing NERT site for their BMI Complex ((#NV0023060) has an approved end of mixing zone point to be monitored, on the basis of tracer-dye study. Hence the request by the Permittee to incorporate same location, 5.5 miles upstream of the confluence of the Las Vegas Wash with Lake Mead, as reference end of the mixing zone or downstream Ambient Water Quality Monitoring Point (AWQMP) is deemed acceptable.

TDS, Mn, and Boron in the shallow groundwater of the Las Vegas Wash in the general area are the only two potential contaminants of concern in the effluent per the sampling done using the three monitoring wells (WMW6.55S, WMW6.15S, and WMW5.58SI) and other available data. Permittee used the 7Q10 approach for identifying the critical low flows for the Wash and either maximum reported concentrations when available or maximum permit limits as critical concentrations for TDS, Mn, and B. The Permittee's request for end of the pipe limits based on estimates arrived at by the mass-balance approach and data as collected from the existing monitoring well sampling as well as last ten years data from the co-dischargers to the reference stretch of the Wash is statistically significant and appropriate; hence are accepted as requested with an expectation for the Permittee to continue to meet the reference water quality standards per NAC 445A.1236 and RMHQ per NAC 445A.2158 at the AWQMP. The limits for Mn & B at the outfall 003 are set per the approved mass-balance calculations.

TDS: Per the approved mass-balance calculations, a TDS limit of 15,968 mg/l in the effluent is expected to meet RMHQ limit for TDS  $\leq$  2400 mg/l at the AWQMP per NAC 445A.2158. However, the maximum recorded TDS in the reference data is less than 5000 mg/l. As such M&R for TDS is more appropriate than setting the three times higher 15,968 mg/l limit from the mass-balance as numerical limit.

TSS and pH: TSS and pH at outfall 003 are limited pursuant to NAC 445A.2158.

Perchlorate: Per the Finding & Order Requiring Engineering Evaluation & Analysis dated April 12, 2016, NDEP-BISC identified and established limits for the potential for accelerated discharge of perchlorate from BMI complex, an adjoining Perchlorate Plume site, to the Wash as a result of proposed dewatering activities associated with the Sunrise Mountain & Historic Lateral Weir Construction. As such, the Permittee's Pump & Treat project goal is to fulfill the obligation to contain and treat the potential accelerated discharge of Perchlorate to the Wash, prior to releasing the effluent back into the Wash to below 18 micrograms/l. Per this Order, NERT is also under obligation to be ready to receive and treat the influent from dewatering activities by June 1, 2017. The perchlorate limit  $\leq$  18 micrograms reflects the primary project goal.

Ammonia & P : The treatment design will slightly lower the Nitrate levels besides removing the perchlorate. Ammonia is currently ND in the influent, but may change depending on the concentrations of ammonium in the influent and the changes in pH, if any, due to the IX chemical reactions. Collecting ammonia along with P as M&R will help the general water quality improvement goals of NDEP for the Wash.

Total Inorganic Nitrogen: Limited pursuant to NAC 445A.2158 (RMHQ).

Priority Pollutants: The project's maximum scheduled project time is 18 months, and current data has no priority pollutants that need immediate attention. As such customary annual M&R is not needed.

The monitoring frequency is chosen to be able to monitor the effluent through each batch of the IX resin and Membrane filter use. The monitoring frequency of monthly when discharging for the AWQMP is deemed sufficient to identify any unexpected exceedances so they can be addressed promptly.

**Special Conditions:**

SA – Special Approvals / Conditions Table

Item #	Description
1	If and when the construction activities at the Historic Lateral Weir renders the Outfall 004 inaccessible, upon Permittee's written request to the Bureau, the Permittee may be approved to collect samples from an alternate sampling point.

**Flow:**

Daily maximum of 6900 GPM (9.94 MGD).

**Corrective Action Sites:**

The NERT site (BMI Complex) adjoining the general construction project is undergoing corrective action under the oversight of NDEP-BISC. Discharges to the Wash from this NERT site are covered under NPDES permit NV0023060. The Pump & Treat activities covered under the current permit are the direct result of and account for the potential perchlorate discharge from this BMI Complex.

No other BCA sites of concern that could be impacted by the dewatering activities associated with the current permit have been identified.

**Wellhead Protection Program:**

The treatment facility and the discharge location at the Las Vegas Wash are not within a Drinking Water Protection Area (DWPA) around any public water supply well.



**Schedule of Compliance:**

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	The Permittee shall submit and obtain approval for final Operations & Maintenance (O&M) manual, wet stamped by a Nevada licensed professional engineer, within 90 days of the permit effective date.	8/22/2017
2	Within 1 year of this permit issuance, all DMRs shall be submitted electronically through the Nevada NetDMR website: <a href="https://netdmr.ndep.nv.gov/netdmr/public/home/htm">https://netdmr.ndep.nv.gov/netdmr/public/home/htm</a>	5/24/2018
3	The permittee shall submit and obtain approval for final design documentation for the treatment facility, to be prepared and wet stamped by a Nevada Licensed Professional Engineer, prior to the commencement of the project construction and within 90 days of the permit effective date.	8/22/2017

**Deliverable Schedule:**

DLV– Deliverable Schedule for Reports, Plans, and Other Submittals

Item #	Description	Interval	First Scheduled Due Date
1	Quarterly DMRs	Quarterly	7/28/2017
2	Annual Report	Annually	1/28/2018

**Procedures for Public Comment:**

The Notice of the Division's intent to issue a permit authorizing the facility to discharge to surface waters of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Las Vegas Review Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. **5/4/2017**, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted. Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determined to be appropriate. All public hearings must be conducted to accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

**Proposed Determination:**

The Division has made the tentative determination to issue / re-issue the proposed 5-year permit.

Prepared by: **Sharada Maligireddy**

Date: **3/28/2017**

Title: **Staff Engineer**